The following summaries were presented at the 86th AMS Annual Meeting in Atlanta, Georgia, 29 January–2 February 2006.

Tracking Billion-Dollar U.S. Weather Disasters

About 10 years ago, NOAA's National Climatic Data Center (NCDC) began tracking U.S. weather and climate events that individually resulted in at least $1 billion in overall damage and costs. The ensuing report, "Billion Dollar U.S. Weather Disasters," which is posted on the Internet, receives more than 30,000 Web page hits per month and has resulted in numerous news media interviews and several conference papers regarding its content. During the 1980–2005 period covered by the current report, 67 events of this magnitude caused more than $500 billion in overall inflation-adjusted damages/costs in the United States. The report provides readers with a snapshot of the major weather and climate events in the United States since 1980, and links online lead to more detailed information and climatological data concerning each event. Events of this magnitude are very significant in that more than half of the annual damages and losses associated with weather events are typically the result of major events that individually incur more than $1 billion in losses. Also, these are the events with the greatest impact on insurance companies and the economy as a whole.

Pulling together the details for the events can be a lengthy and involved process, primarily because there isn't a single government agency in charge of collecting all damage and fatality figures associated with natural disasters in a systematic fashion. The loss and fatality statistics are often not fully known until several months (or longer) after the event occurs. The

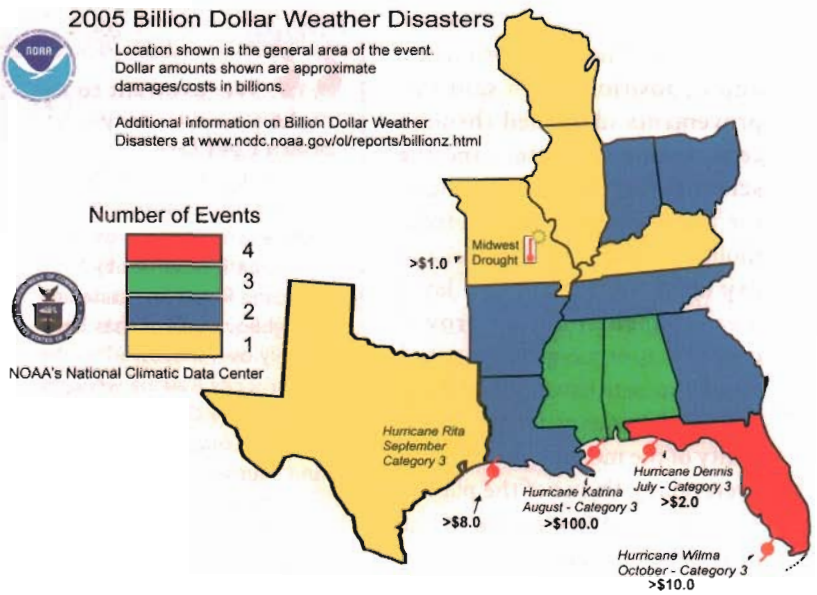
NOAA publication *Storm Data* uses information collected by National Weather Service offices after the end of the month, but there are frequently additional statistics available after this is published. Also, *Storm Data* information is generally compiled by city, county, and date, and does not readily provide an overall summation of damages and fatalities connected with a single event. This is especially true with major events with far-reaching effects.

The methodology employed by NCDC in gathering statistics for "billion-dollar events" is to use the following additional sources of information to the greatest extent possible:

- State emergency-management agencies—some are quite complete in their reports, while others do not provide detailed information. For those that provide complete information, we rely on the state emergency management agency as the leading source of data.
- Insurance information sources—this includes the Insurance Information Institute, which has a great deal of information available on its Web site (www.iii.org). However, figures for uninsured losses, which are often substantial, are not provided.
- U.S. government agencies—NOAA's National Weather Service, the Federal Emergency Management Agency (though FEMA is not tasked with collecting these statistics), and other agencies.
- State and regional climate centers—most states participate along with the six regional climate centers (funded by NOAA).

News media sources—these are not used as primary sources, but as references to point to specific information. For example, a news media quote may lead to investigating the losses reported by a particular state from an event.

Therefore, these statistics are ompiled from a wide variety of urces and represent, to the best our ability, the estimated total sts of these events—that is, the sts in terms of dollars and lives at would not have been incurred



The United States sustained five weather-related disasters during 2005 with overall damages/costs exceeding $1.0 billion for each event. Four of the five events were hurricanes that affected multiple states in the Southeast, and the fifth was severe drought that affected parts of the Midwest. The total cost of these five events is currently estimated to exceed $121 billion (Lott and Ross).

improvement is needed.—Neal Lott (National Climatic Data Center) and T. Ross. "*Tracking and Evaluating U.S. Billion Dollar Weather Disasters, 1980–2005.*" *AMS Forum: Environmental Risk and Impacts on Society: Successes and Challenges*

had the event not taken place. Insured and uninsured losses are included in damage estimates, and direct plus indirect deaths (i.e., those related to the event that would not have occurred otherwise) are included in fatality totals. Economic costs are included for wide-scale, long-lasting events such as drought.

The full report provides a table of the 1980–2005 events that resulted in at least $1 billion in overall damages/costs at the time of the event. It can be found on the Web at **www.ncdc.noaa.gov/oa/reports/billionz.html**.

NCDC encourages each state and, in particular, the state emergency management agencies, to collect damage and fatality statistics for major weather events. Also, the state and regional climate centers could serve as focal points for collection of these data (from the states) for NOAA. Better collection and coordination of overall damage and fatality information is an area where some